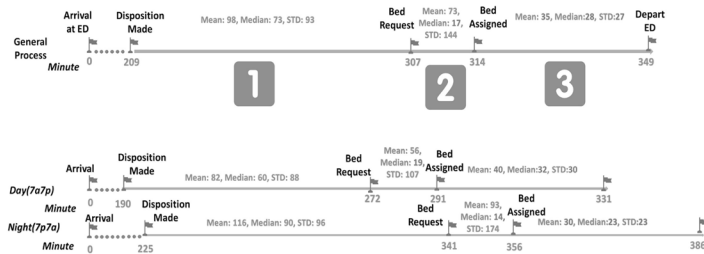


This project demonstrated a synergistic educational experience that allowed the blending of medical education with process engineering, ultimately improving knowledge gaps of both. This unique process allowed for diagnostics to be performed that were necessary for the ED and simultaneously provided a stronger foundation for QI undertakings for both engineering and medical students.

Conclusion: Medical students can benefit from working alongside systems engineers, allowing them to see the value of using tools (simulation modeling, statistical analysis, process flow mapping, etc.) to uncover evidence-based improvements to a variety of medical processes. Healthcare systems engineering students can gain valuable experience in a complex medical environment. Looking for solutions to the disparity between flow during the day and night is an opportunity for future study.



3 Scenario-based Pilot Testing of EMS Provider Interpretation of a Novel Pediatric Triage Protocol

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Introduction: Pediatric care is increasingly concentrated in a small number of hospitals. No widely operative triage protocols guide emergency medical services’ (EMS) pediatric destination decision for nontrauma patients. The PDTree tool is an evidence-based protocol validated by expert consensus, which was developed to assist EMS providers’ in choosing a pediatric destination facility capable of definitive care. The PDTree defines four tiers of pediatric care (specialty/trauma center, comprehensive pediatric facility, regional pediatric facility and closest ED), and matches patients by condition and EMS assessment.

Objective: To pilot test the PDTree tool with practicing EMS providers for accuracy of interpretation and performance across the range of practice levels and prior experience.

Methods: Maryland EMS providers voluntarily participated in online testing. Demographic data included certification level, location of primary EMS jurisdiction, and years of experience. Providers were provided with a copy of the PDTree tool and presented 14 patient scenarios; each scenario was written to match one condition description in the PDTree tool with a clear recommendation for destination facility capability level. For each scenario, providers were asked to name their most likely destination, and to select the level of care suggested by their interpretation of the PDTree tool.

Results: 100 providers (52 ALS, 48 BLS) completed the electronic pilot test. Providers named a destination hospital with appropriate capabilities in 60% of scenarios. Providers’ interpretation of the PDTree’s advised destination level agreed with the intended response for 71% of scenarios. Greater than 90% agreement was seen for burns, witnessed child abuse, and cervical spine injury. Less than 50% agreement was seen for shock and a nondistressed child with a tracheostomy. Rates of agreement differed for diabetic ketoacidosis and nondistressed medically complex child based on provider level, and for elbow injury with deformity with years of experience (Chi Square p value = 0.01 and p value = 0.04, respectively).

Conclusion: EMS providers accurately interpreted the PDTree tool to determine the advised destination for a majority of pediatric scenarios. Future evaluation will focus on conditions with lower rates of agreement to determine if educational interventions or tool alterations are required. Virtual pilot testing using clinical vignettes is a reasonable first step in assessing the usability of a novel clinical decision-making tool.

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4 The Incidence of Infected Patients Identified Through a Sepsis Order Bundle

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Introduction: Sepsis order sets improve compliance with the established guidelines, but clinicians must be careful to initiate these protocols on appropriate patients. Many conditions can mimic sepsis as defined by SEP-1 (two or more SIRS* criteria and a suspected infection) such as trauma, COPD, etc. SEP-1 criteria alone can lead to initiating a sepsis protocol without true infection based solely on vital signs.